WHAT IS CLAIMED IS:

1. A process for separating a mixture of SF_6 and N_2 comprising introducing the mixture to a membrane separator comprising at least one separating membrane which preferentially passes N_2 to obtain an SF_6 enriched retentate and a N_2 enriched permeate, wherein said mixture has an initial SF_6 content of from 5 to 50 volume-%, said at least one membrane comprises a polymer matrix composed of a polycarbonate made from a bisphenol in which at least 25% of the bisphenol units in the polymer chain are tetrahalogenated with chlorine or bromine, and said mixture is fed to said membrane separator at a membrane feed pressure of 10 to 13 bar.

2. A process according to claim 1, wherein the SF_6/N_2 mixture is obtained from a gas insulated line, and said separator is a mobile membrane separating apparatus.

3. A process according to claim 1, wherein said separator comprises at least two separating membrane stages.

4. A process according to claim 3, wherein said separator comprises three separating membrane stages, the retentate of the first membrane stage is fed to the second membrane stage in order to obtain a mixture with a high SF_6 content as retentate from the second membrane stage; the permeate of the first membrane stage is introduced into the third membrane stage; the permeate of the second membrane stage and the retentate of the third membrane stage are recirculated to the feed stream of the first membrane stage, and the permeate of the third membrane stage can be released into the environment.

5. A process according to claim 1, wherein the process is utilized during the use of the gas insulated line to purify the insulating gas mixture of SF_6 and N_2.

6. A process according to claim 1, wherein the process is utilized after completed use of the gas insulated line in order to recover SF_6 prior to disposal of the used line.

7. A system comprising a gas insulated line, a membrane separation apparatus and at least one one connecting line between the gas insulated line and the membrane separation apparatus, wherein said separation apparatus is a mobile membrane separation apparatus.